Southern Nuclear

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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of ITAAC 2.2.01.08 [Index Number 109]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) item 2.2.01.08 [Index Number 109]. This ITAAC verifies that containment electrical penetration assemblies are protected against currents that are greater than the continuous ratings.

The closure process for this ITAAC is based on the guidance described in NEI 08-01, “Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52,” which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,

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Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.2.01.08 [Index Number 109]

JMC/MKO/sfr

cc: Regional Administrator, Region ll
Director, Office of Nuclear Reactor Regulation (NRR)
Director, Vogtle Project Office NRR
Senior Resident Inspector – Vogtle 3 & 4

Southern Nuclear Operating Company
ND-23-0465
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.2.01.08 [Index Number 109]

ITAAC Statement

Design Commitment

8. Containment electrical penetration assemblies are protected against currents that are greater than the continuous ratings.

Inspections, Tests, Analyses

An analysis for the as-built containment electrical penetration assemblies will be performed to demonstrate (1) that the maximum current of the circuits does not exceed the continuous rating of the containment electrical penetration assembly, or (2) that the circuits have redundant protection devices in series and that the redundant current protection devices are coordinated with the containment electrical penetration assembly's rated short circuit thermal capacity data and prevent current from exceeding the continuous current rating of the containment electrical penetration assembly.

Acceptance Criteria

Analysis exists for the as-built containment electrical penetration assemblies and concludes that the penetrations are protected against currents which are greater than their continuous ratings.

ITAAC Determination Basis

An analysis for the as-built containment electrical penetration assemblies is performed to demonstrate (1) that the maximum current of the circuits does not exceed the continuous rating of the containment electrical penetration assembly, or (2) that the circuits have redundant protection devices in series and that the redundant current protection devices are coordinated with the containment electrical penetration assembly's rated short circuit thermal capacity data and prevent current from exceeding the continuous current rating of the containment electrical penetration assembly.

Most low voltage instrumentation and communication circuits are self-limiting in that circuit resistance limits the fault current to a level that does not damage the penetration. The energy levels in the instrumentation and communication systems are such that damage cannot occur to the containment penetration. For circuits that are not self-limiting, an analysis is performed to verify the as-built containment electrical penetration assemblies are protected against currents that are greater than the manufacturer's continuous ratings. The analysis demonstrates that the maximum current of the circuits does not exceed the continuous rating of the containment electrical penetration assembly, or in circuits with high short circuit current, that each circuit has redundant protection devices in series, and that the redundant current protection devices are coordinated with the containment electrical penetration assembly rated short circuit thermal capacity curves, and the fault current does not exceed the penetration assembly rated short circuit thermal capacity curve in the continuous current time range. Each circuit that requires redundant protective devices is identified in the applicable protection coordination calculations. The containment electrical penetration assemblies analyzed are listed in Attachment A. Spare penetrations or penetrations containing low voltage instrumentation and communication circuits which are excluded from the analysis are noted in Attachment A.

The electrical penetrations are designed in accordance with IEEE Standard 317 (Reference 1). Qualification testing of the electrical penetrations is performed in accordance with IEEE Standard 317 and IEEE Standard 323 (Reference 2). The analysis of the as-built containment electrical penetration assemblies is performed in accordance with section 5.4 of IEEE Standard 741 (Reference 3). Analysis of Class 1E circuits is documented in APP-IDS-E0C-014 (Reference 4). Analysis of Non-Class 1E circuits is documented in APP-ECS-E0C-016 (Reference 5). The analysis results are summarized in SV4-CNS-Z0R-001 (Reference 6). The analysis results exist for the as-built containment electrical penetration assemblies and conclude that the penetrations are protected against fault currents which are greater than their continuous current ratings.

The Electrical Penetration Assemblies (EPA) Protection Analysis is available for NRC inspection as part of the ITAAC Completion Package (Reference 7).

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found that there are no relevant ITAAC findings associated with this ITAAC.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.2.01.08 was performed for VEGP Unit 4 and that the prescribed acceptance criteria were met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. IEEE Standard 317-1983, "IEEE Standard for Electrical Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations"
2. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"
3. IEEE Standard 741-1997, "IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations”
4. APP-IDS-EOC-014, Rev. 4, "Verification of IDS Low Voltage Class 1E-Safety Related Electrical Penetrations"
5. APP-ECS-EOC-016, Rev. 4, "Verification of Primary and Backup Electrical Protection of the Low Voltage and Medium Voltage Non-Safety Related Power and Control Containment Electrical Penetrations."
6. SV4-CNS-ZOR-001, Rev. 0, “Vogtle Unit 4 Containment Electrical Penetration Assemblies ITAAC 109 As-built Analysis Report”
7. 2.2.01.08-U4-CP-Rev0, ITAAC Completion Package

Attachment A

Containment System Electrical Penetration Assemblies (EPAs)*

Tag No.	EPA Description – Equipment Name
DAS-EY-P03Z **	Electrical Penetration P03
ECS-EY-P01X	Electrical Penetration P01
ECS-EY-P02X	Electrical Penetration P02
ECS-EY-P06Y	Electrical Penetration P06
ECS-EY-P07X	Electrical Penetration P07
ECS-EY-P09W	Electrical Penetration P09
ECS-EY-P10W	Electrical Penetration P10
IDSA-EY-P11Z**	Electrical Penetration P11
IDSA-EY-P12Y	Electrical Penetration P12
IDSA-EY-P13Y	Electrical Penetration P13
IDSD-EY-P14Z **	Electrical Penetration P14
IDSD-EY-P15Y	Electrical Penetration P15
IDSD-EY-P16Y	Electrical Penetration P16
ECS-EY-P17X	Electrical Penetration P17
ECS-EY-P18X	Electrical Penetration P18
ECS-EY-P19Z **	Electrical Penetration P19
ECS-EY-P20Z **	Electrical Penetration P20
EDS-EY-P21Z **	Electrical Penetration P21
ECS-EY-P22X	Electrical Penetration P22
ECS-EY-P23X	Electrical Penetration P23
ECS-EY-P24 (Spare) **	Electrical Penetration P24
ECS-EY-P25W	Electrical Penetration P25
ECS-EY-P26W	Electrical Penetration P26
IDSC-EY-27Z **	Electrical Penetration P27
IDSC-EY-28Y	Electrical Penetration P28
IDSC-EY-29Y	Electrical Penetration P29
IDSB-EY-30Z **	Electrical Penetration P30
IDSB-EY-31Y	Electrical Penetration P31
IDSB-EY-32Y	Electrical Penetration P32

* Excerpt from COL Table 2.2.1-1
** Denotes a spare or a penetration containing low voltage instrumentation/communication circuits which are excluded from analysis